



METHOD FOR ISOTOPE SEPARATION OF THALLIUM

Abstract of the Disclosure

A method for isotope separation of thallium using a laser beam comprising the steps of: (a) producing photons of a first frequency by a laser system, wherein a wave length of the first frequency is about 378 nm; (b) producing photons of a second frequency by the laser system, wherein a wave length of the second frequency is about 292 nm; (c) producing photons of a third frequency by the laser system, wherein a wave length of the third frequency is in the range of 700 nm to 1400 nm; (d) applying the photons of the first, second and third frequencies to the vapor of the thallium, wherein the photons of the first frequency pump isotope-selectively a plurality of ground state thallium atoms through an excited state into a metastable state, and wherein the photons of the second frequency excite a plurality of metastable state thallium atoms to an intermediate, resonant state, and wherein the photons of the third frequency ionize a plurality of atoms in the intermediate, resonant state through continuum states; and (e) collecting the isotope ions. Thallium isotope can efficiently be separated with small scale facilities.